

**U.S. Department of Energy**  
**Washington, D.C.**

**ORDER**

**DOE O 450.1A**

Approved: 1-15-03  
Review Date: 1-15-05  
Chg 1: 1-24-05  
Chg 2: 12-7-05  
Admin Chg 1: 1-3-07

**SUBJECT: ENVIRONMENTAL PROTECTION PROGRAM**

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1. **PURPOSE.** To implement sound stewardship practices that are protective of the air, water, land, and other natural and cultural resources impacted by Department of Energy (DOE) operations, and by which DOE cost effectively meets or exceeds compliance with applicable environmental; public health; and resource protection laws, regulations, and DOE requirements. The objectives are:
  - a. To implement sustainable practices for enhancing environmental, energy, and transportation management performance, as stipulated in Section 3(a) of Executive Order (EO) 13423, through environmental management systems that are part of Integrated Safety Management (ISM) systems established pursuant to DOE P 450.4, dated 10-15-96.
  - b. To achieve the DOE Sustainable Environmental Stewardship goals found in Attachment 2.
2. **CANCELLATION.** DOE O 450.1 Chg 2. Cancellation of a Directive does not, by itself, modify or otherwise affect any contractual obligation to comply with the Directive. Cancelled Directives that are incorporated by reference in a contract remain in effect until the contract is modified to delete the references to the requirements in the cancelled Directives.
3. **APPLICABILITY.**
  - a. **All Departmental Elements**
    - (1) Except as noted in paragraph 3c, this Order applies to all Departmental elements that are responsible for the management and operation of the Department's facilities and activities, including elements of the National Nuclear Security Administration (NNSA), the Western Area Power Administration, and the Southwest Power Administration. (Go to <http://www.directives.doe.gov/pdfs/reftools/org-list.pdf> for the current listing of Departmental elements. This list automatically includes all Departmental elements created after the Order is issued.)
    - (2) The Administrator of NNSA will assure that NNSA employees comply with their respective responsibilities under this Order. Nothing in this Order will be construed to interfere with the NNSA Administrator's

authority under section 3212(d) of Public Law (P.L.) 106-65 to establish Administration specific policies, unless disapproved by the Secretary.

- (3) Where ISM systems are not applicable, Departmental elements must ensure the implementation of environmental management systems. These Departmental elements must interpret all references to ISM within this Order to mean environmental management systems.

b. DOE Contractors.

The Contractor Requirements Document (CRD), Attachment 1, sets forth requirements of this Order that will apply to contractors responsible for the management and operation of the Department-owned facilities whose contracts include the CRD.

- (1) This CRD must be included, as appropriate, in all contracts that include DEAR 970.5223-1, Integration of environment, safety, and health into work planning and execution, and all site/facility management contracts involving activities associated with the use, storage, disposal and transportation of waste; emissions to air; discharges to water; and management of cultural and natural resources.
- (2) This Order does not apply to other than site/facility management contracts. Any application of any requirements of this Order to other than site/facility management contracts will be communicated separately from this Order.
- (3) The office identified in paragraph 5d is responsible for notifying the contracting officer of which contracts are affected. Once notified, the contracting officer is responsible for incorporating the CRD into each affected contract via the laws, regulations, and DOE directives clause of the contract.
- (4) As the laws, regulations, and DOE directives clause state, regardless of the performer of the work, a contractor with the CRD incorporated into its contract is responsible for compliance with the requirements of the CRD. An affected contractor is responsible for flowing down the requirements of this CRD to subcontracts at any tier to the extent necessary to ensure the contractor's compliance with the requirements.

c. Exclusions.

- (1) Activities conducted under the authority of the Director, Naval Nuclear Propulsion Program, as described in Executive Order 12344 and set forth in Public Laws 98-525 and 106-65.
- (2) Activities conducted by the Bonneville Power Administration as authorized by Delegation Order No. 00-033.00A.
- (3) Activities conducted by the Office of the Secretary, Chief Information Office, Office of Congressional and Intergovernmental Affairs, Office of Economic Impact and Diversity, Energy Information Administration, Office of General Counsel, Office of Hearings and Appeals, Office of Inspector General, Office of Intelligence and Counterintelligence, Office of Policy and International Affairs, Office of Public Affairs, and Secretary of Energy Advisory Board.

4. REQUIREMENTS.

- a. Implementation of Environmental Management System. Each DOE site must develop and implement an environmental management system. This environmental management system must be integrated into the site's ISM system developed pursuant to DOE P 450.4 and DOE M 450.4-1.
- b. Elements of Environmental Management System. The environmental management system must:
  - (1) Correspond to the environmental management system elements and framework found in the ISO 14001:2004 (E) International Standard or its successor when approved by DOE, including policies, procedures and training to identify operations and activities with significant environmental impacts; to manage, control, and mitigate the impacts of these operations and activities; and to assess performance, implement corrective actions where needed, and ensure continual improvement.
  - (2) Include environmental, energy, and transportation objectives and measurable targets that are reviewed annually, are updated when appropriate, and contribute to achieving the DOE Sustainable Environmental Stewardship goals found in Attachment 2, and the energy and transportation goals in Order 430.2B.
  - (3) Address tenant, concessionaire or other activities where such activities affect DOE's environmental, energy, and transportation management.
  - (4) Contain the elements of an Environmental Compliance Management Plan pursuant to the Council on Environmental Quality's *Instructions for Implementing Executive Order 13423*, page 9, section B, including:
    - (a) A clear statement by senior leadership committing to achieve and maintain compliance with applicable environmental protection

requirements.

- (b) Clearly articulated roles and responsibilities for managers and employees for maintaining excellence in environmental performance at all site operations and activities.
  - (c) Procedures for implementation of an environmental compliance audit and review program that identifies compliance deficiencies and possible root causes of non-compliance.
  - (d) Procedures for integration of compliance management system information and resource allocation procedures to ensure that audit findings and possible root causes of non-compliance are tracked and addressed.
- c. Scope of the Environmental Management System. The environmental management system must encompass the environmental aspects of site operations and activities, including environmental aspects of energy and transportation functions, and it must promote the long-term stewardship of a site's natural and cultural resources throughout its design and construction, operational, closure, and post-closure life cycle. The environmental management system must address the following:
  - (1) Sustainable practices for enhancing environmental, energy, and transportation management performance, as stipulated in Section 3(a) of EO 13423.
  - (2) Protection of public health and the environment including, but not limited to:
    - (a) conformity of DOE proposed actions with State Implementation Plans to attain and maintain national ambient air quality standards,
    - (b) implementation of a watershed approach for surface water protection,
    - (c) implementation of a site-wide approach for groundwater protection,
    - (d) protection of other natural resources, including biota, and
    - (e) protection from potential adverse effects associated with nanomaterials manufactured or used at DOE sites.
  - (3) Protection of site resources from wildland fires consistent with site wildland and operation fire management plans that consider the Federal Wildland Fire Management Policy recommendations.

- (4) Identification and protection of cultural resources.
  - (5) The conduct of environmental and effluent monitoring, as appropriate, to characterize preoperational conditions and to detect, characterize, and respond to releases from DOE activities; assess impacts; estimate dispersal patterns in the environment; characterize the pathways of exposure to members of the public; characterize the exposures and doses to individuals and the population; and evaluate the potential impacts to the biota in the vicinity of the release.
  - (6) Assurance that analytical work to support the environmental and effluent monitoring is implemented and is of the quality necessary to support data quality objectives.
- d. Validation of the Environmental Management System. Validation requires the following:
- (1) To be “fully implemented,” the environmental management system must:
    - (a) have been the subject of a formal audit conducted by a qualified party outside of the control or scope of the environmental management system,
    - (b) have the audit findings recognized and addressed by the appropriate contractor senior management and DOE field office management, and
    - (c) have a declaration of conformance to the requirements of paragraph 4b of this Order issued by the senior manager accountable for implementation of the EMS and by the cognizant Field Office Manager.
  - (2) Site environmental management systems, including those already declared under the previous requirements of DOE 450.1, must meet the new requirements for “fully implemented” by December 31, 2008.
  - (3) To remain fully implemented, the environmental management system must be audited, at least every three years, by a qualified party outside of the control or scope of the organization implementing the environmental management system.
- e. As part of integrating environmental management systems into ISM systems pursuant to DOE M 450.4-1, Program Secretarial Officers and Field Office Managers shall incorporate appropriate performance objectives, measures and commitments to support the following at site(s) under their purview:
- (1) compliance with applicable environmental protection requirements,

- (2) achievement of the DOE Sustainable Environmental Stewardship goals found in Attachment 2, and the energy and transportation goals in Order 430.2B, and
- (3) implementation and oversight of the site(s) environmental management system.

5. RESPONSIBILITIES.

- a. Assistant Secretary for Energy Efficiency and Renewable Energy, in addition to responsibilities in paragraph 5c, serves as the Senior Agency Officer (SAO) pursuant to EO 13423 and must do the following:
  - (1) Provide progress reports, as requested, on DOE implementation of EO 13423 to the Chairman of the Council on Environmental Quality, the Director of the Office of Management and Budget, and the Federal Environmental Executive.
  - (2) Coordinate with Program Secretarial Officers, the Administrator for the National Nuclear Security Administration, Administrators of the Western Area Power Administration and the Southwest Power Administration, DOE Field Office Managers, and the Office of Human Capital Management to promote the implementation of EO 13423 and the sustainable environmental, energy and transportation goals of this Order and Order 430.2B in performance standards and performance evaluations of relevant DOE personnel, such as Field Office Managers, environmental and energy program managers, vehicle fleet managers, contracting officials, and others as appropriate.
  - (3) Establish leadership awards to recognize outstanding environmental, energy, or transportation management performance.
- b. Chief Health, Safety and Security Officer, in coordination with other Departmental elements, must do the following:
  - (1) Develop new, or revise existing, DOE environmental protection directives, policies, guidance, requirements, and procedures to:
    - (a) provide guidance to Program Secretarial Offices and field organizations for ensuring site ISM systems provide for environmental management systems;
    - (b) disseminate information to sites to maximize the use of safe alternatives to ozone-depleting substances (ODS) in their efforts to phase out ODS uses; and

- (c) provide guidance for sites to incorporate sustainability goals, including the multi-year energy and transportation goals, into environmental management systems.
  - (2) Evaluate the effectiveness of DOE headquarters and field organizations' implementation of the requirements and responsibilities of this Order.
  - (3) Serve as Department of Energy primary liaison, as appropriate, to other Federal agencies and national and international standards bodies on environment, safety and health standards by:
    - (a) reviewing environment, safety and health standards developed by other Federal agencies and national and international standards bodies applicable to Department of Energy activities, and
    - (b) coordinating appropriate review and comment of applicable standards by affected Departmental elements and transmitting DOE comments.
  - (4) Support the SAO in the preparation of Departmental progress reports required pursuant to EO 13423 that address areas covered by this Order. Specifically, submit to the Federal Environmental Executive the required annual report for the Department on the status of implementation of the environmental management system requirements of EO 13423, as well as required reports on the sustainable environmental practices and goals for which the SAO has delegated responsibility to the Chief Health, Safety, and Security Officer
  - (5) Manage the Pollution Prevention (P2) Star Award program, including preparing and submitting DOE site nominations to the White House "Closing the Circle Awards" program.
- c. Program Secretarial Officers, the Administrator for the National Nuclear Security Administration, and the Administrators of the Western Area Power Administration and the Southwestern Power Administration must do the following:
- (1) Implement the requirements identified in paragraph 4e and the responsibilities of paragraph 5c(3) by December 31, 2008.
  - (2) Address as part of their annual ISM effectiveness review under paragraph I3e(4) of DOE M 450.4-1, the implementation of the requirements of paragraph 4e and the responsibilities of paragraph 5c.
  - (3) Ensure that the Field Offices under their purview implement the requirements identified under paragraph 4e and the responsibilities under paragraph 5d (1) and (5) of this Order, and that sites under their purview revise their environmental management systems to encompass the

requirements of paragraphs 4b, 4c, and 4d of this Order by December 31, 2008.

- (4) Ensure that sites under their purview include site-specific objectives and measurable targets in their environmental management systems that contribute to the achievement of the DOE Sustainable Environmental Stewardship goals found in Attachment 2, and the energy and transportation goals in DOE O 430.2B.
- (5) Assess as part of the line oversight of Field Offices conducted under paragraph I3e(3) of DOE M 450.4-1, the implementation of the requirements of paragraph 4e and responsibilities of paragraph 5d of this Order.
- (6) Request through the annual Department budgetary process the funding and resources needed to implement the requirements of this Order and the findings and recommendations from oversight and review activities conducted in accordance with paragraph I3e(3) and (4) of DOE M 450.4-1.
- (7) On an annual basis select “best in class” environmental stewardship nominees from submissions from sites under their purview, and transmit the nominating information to the Office of Health, Safety and Security for consideration for P2 Star Awards and submittal to the White House’s “Closing the Circle Awards” program.
- (8) Ensure sites under their purview monitor progress toward meeting the requirements of paragraphs 4b, 4c, and 4d of this Order, and make such information available annually to the SAO and the Office of Health, Safety and Security.
- (9) Ensure that agreements, permits, leases, licenses, or other legally-binding obligations between DOE and a tenant or concessionaire entered into after the effective date of this Order, require that the tenant or concessionaire take actions relating to matters within the scope of the contract that facilitate DOE’s compliance with the requirements of this Order.
- (10) Coordinate with the SAO, DOE Field Office Managers, and the Office of Human Capital Management to promote the implementation of EO 13423 and the sustainable environmental, energy and transportation goals of this Order and Order 430.2B in performance standards and performance evaluations of relevant DOE personnel, such as Field Office Managers, environmental and energy program managers, vehicle fleet managers, contracting officials, and others as appropriate.
- (11) Ensure all personnel whose actions are affected by this Order receive, as part of their ISM training, environmental management system awareness



training that addresses how to implement, manage, measure, and continually improve upon the sustainable environmental, energy, and transportation practices of EO 13423.

- d. Field Office Managers, in coordination with their reporting sites and Program Secretarial Officers, must do the following:
- (1) Implement the requirements identified in paragraph 4e and the responsibilities of paragraph 5d(5) by December 31, 2008.
  - (2) Address as part of their annual ISM effectiveness reviews conducted under paragraph I3f(4) of DOE M 450.4-1, the implementation of the requirements of paragraph 4e and the responsibilities of paragraph 5d, and the implementation of the requirements of paragraph 4a, 4b, 4c and 4d of this Order by sites under their purview.
  - (3) Assess as part of the review and approval of contractors' ISM system descriptions and updates conducted under paragraph I3f(3) of DOE M 450.4-1, the implementation of the requirements in paragraph 4a, 4b, 4c and 4d of this Order.
  - (4) Ensure where more than one contractor operates a site, that site-wide environmental aspects are appropriately addressed in each individual contractor environmental management system or within the Field Office ISM system.
  - (5) Ensure that sites under their purview revise their environmental management system to encompass the requirements of paragraphs 4b, 4c and 4d of this Order by December 31, 2008.

For those sites which have chosen to register their environmental management system to the ISO 14001:2004 (E) International Standard, Field Office Managers' oversight may be limited to verifying that the registration and associated audits address the scope of the environmental management system required by paragraphs 4b and 4c.

- (6) Ensure that sites under their purview include site-specific objectives and targets in their environmental management systems that contribute to the achievement of the DOE Sustainable Environmental Stewardship goals found in Attachment 2, and the energy and transportation goals in DOE O 430.2B.
- (7) Ensure sites monitor progress toward meeting the requirements of paragraphs 4b, 4c and 4d of this Order, and make such information available annually to the SAO and the Office of Health, Safety and Security.
- (8) Ensure sites' annual budget requests include the funding and resources

needed to implement the requirements of this Order, including achievement of the DOE Sustainable Environmental Stewardship goals found in Attachment 2, and the energy and transportation goals in DOE O 430.2B.

- (9) Ensure sites' compliance with the requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Pollution Prevention Act of 1990, without regard to Standard Industrial Classification (SIC)/North American Industrial Classification (NAIC) designations.
  - (10) Ensure that sites under their purview conduct environmental monitoring pursuant to the requirements in paragraphs 4c(5) and (6) of this Order.
  - (11) Ensure that agreements, permits, leases, licenses, or other legally-binding obligations between DOE and a tenant or concessionaire entered into after the effective date of this Order, require that the tenant or concessionaire take actions relating to matters within the scope of the contract that facilitate DOE's compliance with this Order.
  - (12) Coordinate with their cognizant Program Secretarial Officer or Administrator to promote the implementation of EO 13423 and the sustainable environmental, energy and transportation goals of this Order and Order 430.2B in performance standards and performance evaluations of relevant DOE personnel, such as Field Office Managers, environmental and energy program managers, vehicle fleet managers, contracting officials, and others as appropriate.
  - (13) Ensure all personnel whose actions are affected by this Order receive, as part of their ISM training, environmental management system awareness training that addresses how to implement, manage, measure, and continually improve upon the sustainable environmental, energy, and transportation practices of EO 13423.
- e. Office of Human Capital Management, in coordination with other Departmental elements, must develop or revise existing DOE directives, policies, and documents to accomplish the following:
- (1) Include, as appropriate, training on this Order in the standard senior-level management training for program managers, contracting personnel, procurement and acquisition personnel, facility managers, and all employees whose actions have environmental consequences or the potential for such.
  - (2) Coordinate with the SAO, Program Secretarial Officers, the Administrator for the National Nuclear Security Administration, Administrators of the Western Area Power Administration and the Southwest Power

Administration, and DOE Field Office Managers to promote the implementation of EO 13423 and the sustainable environmental, energy and transportation goals of this Order and Order 430.2B in performance standards and performance evaluations of relevant DOE personnel, such as Field Office Managers, environmental and energy program managers, vehicle fleet managers, contracting officials, and others as appropriate.

- f. Office of Management, in coordination with other Departmental elements, must develop or revise existing DOE directives, policies, and documents to accomplish the following:
  - (1) Ensure property management policies and procedures preclude the Department's disposal of ODS without prior coordination with DoD.
  - (2) Ensure procurement policies and procedures encourage the Department's acquisition of recycled-content and biobased-content materials, Electronic Procurement Environmental Assessment Tool (EPEAT)-registered electronics and other environmentally preferable products and services.
  - (3) Ensure incorporation of planning and management requirements for historic property preservation pursuant to Section 3(b)(vi) of Executive Order 13327.
  - (4) Request through the annual Department budgetary process the funding and resources needed to implement the requirements of this Order.
- g. Office of the Chief Financial Officer, in coordination with other Departmental elements, must develop or revise existing DOE directives, policies, and documents to accomplish the following:
  - (1) Reference DOE's Sustainable Environmental Stewardship goals in the Department's strategic and annual performance plans required by the Government Performance and Results Act of 1993.
  - (2) Ensure that requests for funding by Program Secretarial Officers, the Administrator for the National Nuclear Security Administration, and the Administrators of the Western Area Power Administration and the Southwest Power Administration to implement the requirements of this Order are considered in the formulation of DOE's annual budget request.
- h. Office of Legacy Management, in addition to responsibilities in paragraph 5c, must coordinate with other Departmental elements and DoD to dispose of ODS that is a critical requirement for DoD missions.

## 6. DEFINITIONS

Environmental Aspect: An element of an organization's activities or products or services that can interact with the environment.

Environmental Management System: The set of processes and practices that enable an organization to increase its operating efficiency, continually improve overall environmental performance and better manage and reduce its environmental impacts, including those environmental aspects related to energy and transportation functions. Environmental management system implementation reflects accepted quality management principles based on the "Plan, Do, Check, Act," model found in the ISO 14001:2004(E) International Standard and using a standard process to identify and prioritize current activities, establish goals, implement plans to meet the goals, evaluate progress, and make improvements to ensure continual improvement.

Environmentally Preferable Products: Products or services that have a lesser or reduced effect on human health and environment when compared with competing products or services that serve the same purpose including materials that result in no waste, less waste or less toxic waste across the entire life-cycle. This comparison may consider raw materials acquisition, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.

Field Office Managers: The terms "field office" and "field office managers" are used interchangeably to indicate the DOE field office with direct management and oversight of operational activities, which may be performed by contractors or by Government-Owned-Government-Operated (GOGO) personnel at the site. "Field offices" may have various other designations, including operations office, site office, and project office. Where multiple levels of DOE field organizations exist, applicable DOE Program Secretarial Officers should determine in their ISM system descriptions how to apply these responsibilities.

Site: Refers to the DOE entity which conducts operational activities. In most cases this refers to the contractor(s) operating DOE owned or leased facilities at discrete locations across the United States. In the case of GOGO facilities (including the Western Area Power Administration and the Southwest Power Administration), it refers to the DOE operating organization.

## 7. REFERENCES

**Executive Order 13423**, *Strengthening Federal Environmental, Energy, and Transportation Management*. [http://ofee.gov/eo/EO\\_13423.pdf](http://ofee.gov/eo/EO_13423.pdf)

**Instructions for Implementing Executive Order 13423**, *Strengthening Federal Environmental, Energy, and Transportation Management*. <http://ofee.gov/eo/eo13423.pdf>

**ISO 14001:2004(E) Environmental Management Systems**: Requirements with Guidance for Use. Order from website <http://webstore.ansi.org>

**Title XXXII of P.L. 106-65**, National Nuclear Security Administration Act, as amended.

**DOE Handbook, Chemical Management**, Vol. 2, Chemical Safety and Lifecycle Management, DOE-HDBK-1139/2-2006.

**DOE G 450.1-4**, *Implementing Guide, Wildland Fire Management Program for Use with DOE 450.1, Environmental Protection Guidance*.

**DOE P 450.4**, *Safety Management System Policy*, dated 10-15-96.

**DOE M 450.4-1**, *Integrated Safety Management System Manual*, dated 11-1-06.

**DOE O 430.2B**, *Departmental Energy, Utilities and Transportation Management*.

**Executive Order 13327**, *Federal Real Property Asset Management*.

**DOE O 413.3A**, *Program and Project Management for the Acquisition of Capital Assets*.

**Emergency Planning and Community Right-to-Know Act (EPCRA)** or Title III of Superfund Amendments and Reauthorization Act of 1986), 42 U.S.C. 11001.

**Pollution Prevention Act of 1990**, 42 U.S.C. 13101, et seq.

8. CONTACT. For assistance, contact the Office of Nuclear Safety and Environment at 202-586-5680.

BY ORDER OF THE SECRETARY OF ENERGY:



CLAY SELL  
Deputy Secretary

## CONTRACTOR REQUIREMENTS DOCUMENT

### DOE O 450.1A, *Environmental Protection Program*

This Contractor Requirements Document (CRD) establishes the requirements for Department of Energy (DOE) contractors, including National Nuclear Security Agency contractors, responsible for the management and operation of the Department-owned facilities whose contracts include the CRD.

Regardless of the performer of the work, the contractor is responsible for compliance with the requirements of this CRD. The contractor is responsible for flowing down the requirements of this CRD to subcontractors at any tier to the extent necessary to ensure the contractors' compliance with the requirements.

This CRD requires contractors to integrate numerous environmentally related requirements already placed on it by existing statutes, regulations, and policies through the use of an environmental management system incorporated into an Integrated Safety Management (ISM) system. Environmental management system requirements must be addressed in the contractor's ISM system which must be submitted for DOE review and approval under DEAR 970.5223-1, Integration of environment, safety, and health into work planning and execution.

As directed by the Contracting Officer, contractors must:

1. Develop and implement an environmental management system. This system must be integrated into the site's ISM system developed pursuant to DOE P 450.4 and M 450.4-1.
  - a. The elements of the environmental management system must:
    - (1) Correspond to the environmental management system elements and framework found in the ISO 14001:2004 (E) International Standard or its successor, including policies, procedures and training to identify operations and activities with significant environmental impacts, to manage, control, and mitigate the impacts of these operations and activities, and to assess performance, implement corrective actions where needed, and ensure continual improvement.
    - (2) Include environmental, energy, and transportation objectives and measurable targets that are reviewed annually, are updated when appropriate, and contribute to achieving the DOE Sustainable Environmental Stewardship goals found in Attachment 2, and the energy and transportation goals in Order 430.2B.

- (3) Include operational assessments, such as pollution prevention opportunity assessments, of site operations and activities to identify opportunities to implement sustainable practices as part of achieving DOE's Sustainable Environmental Stewardship goals in Attachment.
- (4) Address tenant or concessionaire activities wherever such activities affect DOE's environmental, energy and transportation management.
- (5) Contain the elements of an Environmental Compliance Management Plan pursuant to the Council on Environmental Quality's *Instructions for Implementing Executive Order 13423*, page 9, section B, including:
  - (a) A clear statement by senior leadership committing to achieve and maintain compliance with applicable environmental protection requirements.
  - (b) Clearly articulated roles and responsibilities for managers and employees for maintaining excellence in environmental performance at all site operations and activities.
  - (c) Implementation of an environmental compliance audit and review program that identifies compliance deficiencies and possible root causes of non-compliance.
  - (d) Integration of compliance management system information and resource allocation procedures to ensure that audit findings and possible non-compliance root causes are tracked and addressed.
- b. The environmental management system must encompass the environmental aspects of site operations and activities, including environmental aspects of energy and transportation functions, and it must promote the long-term stewardship of a site's natural and cultural resources throughout its design and construction, operational, closure, and post-closure life cycle. The environmental management system must include the following:
  - (1) Sustainable practices for enhancing environmental, energy, and transportation management performance, as stipulated in Section 3(a) of EO 13423.
  - (2) Protection of public health and the environment, including but not limited to:
    - (a) conformity of DOE proposed actions with State Implementation Plans to attain and maintain national ambient air quality standards,
    - (b) implementation of a watershed approach for surface water

protection,

- (c) implementation of a site-wide approach for groundwater protection,
    - (d) protection of other natural resources, including biota, and
    - (e) protection from potential adverse effects associated with nanomaterials manufactured or used at DOE sites.
  - (3) Protection of site resources from wildland fires consistent with site wildland and operation fire management plans that consider the Federal Wildfire Management Policy recommendations.
  - (4) Identification and protection of cultural resources.
  - (5) The conduct of environmental and effluent monitoring, as appropriate, to characterize preoperational conditions, and to detect, characterize, and respond to releases from DOE activities; assess impacts; estimate dispersal patterns in the environment; characterize the pathways of exposure to members of the public; characterize the exposures and doses to individuals and the population; and evaluate the potential impacts to the biota in the vicinity of the release.
  - (6) Assurance that analytical work to support the environmental and effluent monitoring is implemented and is of the quality necessary to support data quality objectives using—
    - (a) a consistent system for collecting, assessing, and documenting environmental data of known and documented quality consistent with data quality objectives needs;
    - (b) a validated and consistent approach for sampling and analysis to ensure laboratory data meets program-specific needs and requirements within the framework of a performance-based approach for analytical laboratory work; and
    - (c) an integrated sampling approach to avoid duplicative data collection.
- c. The environmental management system must be validated according to the following criteria:
- (1) To be “fully implemented”, the environmental management system must:



- (a) have been the subject of a formal audit conducted by a qualified party outside of the control or scope of the organization implementing the environmental management system,
    - (b) have the audit findings recognized and addressed by the appropriate contractor senior management and DOE field office management, and
    - (c) have a declaration of conformance to the requirements of paragraph 4b of this Order issued by the senior manager accountable for implementation of the EMS and by the cognizant Field Office Manager.
  - (2) Site environmental management systems already declared under the previous requirements of DOE 450.1 must meet the new requirements for “fully implemented” by December 31, 2008.
  - (3) To remain fully implemented, the environmental management system must be audited, at least every three years, by a qualified party outside of the control or scope of the organization implementing the environmental management system.
2. Monitor progress toward meeting the requirements of paragraph 1a, 1b and 1c of this CRD, and make such information available annually to the Senior Agency Officer (SAO) and the Office of Health, Safety and Security.
3. Include in site environmental management systems practices to maximize the use of safe alternatives to ozone depleting substances (ODS), whereby —
- a. the use of ODS in new equipment is eliminated pursuant to Executive Order 13423,
  - b. the use of ODS in existing equipment is phased out as the existing equipment reaches its expected service life, and the maintenance of equipment is conducted to prevent or fix leaks,
  - c. the replacement of leaking equipment is carried out when leak repair is no longer cost-effective or where it is life-cycle cost-effective to replace the equipment,
  - d. coordination is conducted within DOE and with the Department of Defense (DoD), as appropriate, before disposal of ODS removed or reclaimed from equipment (including disposal as part of a contract, trade, or donation), and for situations in which the recovered ODS is a critical requirement for DoD missions, the DOE facility transfers the ODS to DoD, and

- e. the Director, Office of Legacy Management, is notified as to the type and quantity of ODS transferred to the DoD ODS Reserve.
- 4. Assist the Department in meeting its requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA) and the Pollution Prevention Act of 1990, without regard to Standard Industrial Classification (SIC)/North American Industrial Classification (NAIC) designations.
- 5. Assist the Department with its requirement under Executive Order 13327, Section 3(b)(vi), by ensuring incorporation of planning and management requirements for historic property.

**DOE O 450.1A****Attachment 2****SUSTAINABLE ENVIRONMENTAL STEWARDSHIP GOALS****1. PURPOSE.**

- a. To establish Department of Energy (DOE) Sustainable Environmental Stewardship goals that advance the sustainable practices for enhancing environmental, energy and transportation management performance, as stipulated in Executive Order (EO) 13423.
- b. To integrate sustainable practices into DOE operations as cost-effective business practices that will:
  - (1) prevent pollution,
  - (2) reduce environmental hazards,
  - (3) protect public health and the environment,
  - (4) avoid pollution control and waste disposal costs, and
  - (5) improve operational capability and overall mission sustainability.

**2. GOALS, OBJECTIVES AND SUSTAINABLE PRACTICES.**

The Department is to achieve these performance-based Sustainable Environmental Stewardship goals through site implementation of the accompanying sustainable practices and their integration into environmental management systems pursuant to DOE 450.1A and its Contractor Requirements Document (CRD). DOE sites are to consider mission performance and life-cycle costs when selecting specific sustainable practices for achieving the Sustainable Environmental Stewardship goals.

**3. PERFORMANCE MEASURES.**

Measure progress towards meeting the requirements of paragraph 4 of this Order and paragraph 1 of its CRD, and make such information available annually to the Senior Agency Official and the Chief Health, Safety and Security Officer pursuant to paragraphs 5c(8) and 5d(7) of this Order and paragraph 2 of its CRD.

<b>GOAL</b>	<b>REDUCE OR ELIMINATE THE GENERATION AND/OR TOXICITY OF WASTE AND OTHER POLLUTANTS AT THE SOURCE THROUGH POLLUTION PREVENTION</b>
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<b>GOAL</b>	<b>REDUCE OR ELIMINATE THE GENERATION AND/OR TOXICITY OF WASTE AND OTHER POLLUTANTS AT THE SOURCE THROUGH POLLUTION PREVENTION</b>
<b>OBJECTIVE</b>	Reduce environmental hazards, protect environmental resources, minimize life-cycle cost and liability of DOE programs, and maximize operational capability by eliminating or minimizing the generation of wastes and other pollutants, through source reduction including segregation, substitution, and reuse, that would otherwise require storage, treatment, disposal, and long-term monitoring and surveillance (i.e., future environmental legacies).
<b>SUSTAINABLE PRACTICES -</b>	<ul style="list-style-type: none"> <li>• Establish operational assessments, such as pollution prevention opportunity assessments, of waste generating activities, as objectives and measurable targets in site environmental management systems.</li> <li>• Based on operational assessments, establish objectives and measurable targets in site environmental management systems for the prevention, reduction, reuse and recycling of waste streams generated at sites.</li> <li>• Identify through the annual Department budgetary process the funding and resources needed to implement this sustainable environmental stewardship goal and site-specific objectives and targets that are not alternatively funded through Energy Savings Performance Contracts (ESPCs).</li> <li>• Participate in voluntary environmental partnership programs (e.g., National Waste Minimization Program, Waste Wise, National Environmental Performance Track, etc.) where there is a programmatic benefit from doing so (community outreach, technology transfer, regulatory incentives, etc.).</li> </ul>

<b>GOAL</b>	<b>REDUCE OR ELIMINATE THE ACQUISITION, USE, AND RELEASE OF TOXIC AND HAZARDOUS CHEMICALS AND MATERIALS</b>
<b>OBJECTIVE</b>	Reduce environmental hazards, protect environmental resources, minimize life-cycle cost and liability of DOE programs, and maximize operational sustainability by eliminating or minimizing the acquisition, use, and associated release of toxic and hazardous chemicals and materials, including hazardous substances, ozone-depleting substances (ODS), and other pollutants, that would otherwise require control, treatment, monitoring, and reporting.
<b>SUSTAINABLE PRACTICES -</b>	<ul style="list-style-type: none"> <li>• Establish operational assessments, such as pollution prevention opportunity assessments, of activities using toxic and hazardous chemicals and materials, as objectives and measurable targets in site environmental management systems.</li> <li>• Based on operational assessments, establish objectives and measurable targets in site environmental management systems for minimizing the acquisition, use, and disposal of toxic and hazardous chemicals and materials to reduce releases of pollutants to the environment (air, water, soil, biota). For example, <ul style="list-style-type: none"> <li>– using more environmentally benign solvents and solvent-less systems that reduce or eliminate the use and/or generation of hazardous substances; or</li> <li>– designing analytical products and processes that reduce or eliminate the use and/or generation of hazardous substances.</li> </ul> </li> <li>• Employ tools such as the Green Chemical Alternatives Purchasing Wizard to identify more environmentally benign alternatives and substitutes for laboratory-related chemicals or processes. (<a href="http://web.mit.edu/environment/academic/purchasing.html">http://web.mit.edu/environment/academic/purchasing.html</a>)</li> <li>• Ensure sites' environmental management systems include practices to maximize the use of safe alternatives to ODS whereby— <ul style="list-style-type: none"> <li>– the use of ODS in new equipment is eliminated pursuant to Executive Order 13423;</li> <li>– the use of ODS in existing equipment is phased out as the existing equipment reaches its expected service life, and the maintenance of equipment is conducted to prevent or fix leaks;</li> </ul> </li> </ul>

GOAL	<b>REDUCE OR ELIMINATE THE ACQUISITION, USE, AND RELEASE OF TOXIC AND HAZARDOUS CHEMICALS AND MATERIALS</b>
	<ul style="list-style-type: none"> <li>– the replacement of leaking equipment is carried out when leak repair is no longer cost-effective or, where it is life-cycle cost-effective, to replace the equipment;</li> <li>– coordination is conducted within DOE and with the Department of Defense (DoD), as appropriate, before disposal of ODS removed or reclaimed from equipment (including disposal as part of a contract, trade, or donation), and for situations in which the recovered ODS is a critical requirement for DoD missions, the DOE facility transfers the ODS to DoD; and</li> <li>– the Director, Office of Legacy Management, is notified as to the type and quantity of ODS transferred to the DoD ODS Reserve.</li> </ul> <ul style="list-style-type: none"> <li>• Implement a centralized chemical inventory tracking system that integrates information throughout the entire chemical lifecycle covering procurement, storage, use, transfer/movement, and final disposition.</li> <li>• Identify through the annual Department budgetary process the funding and resources needed to implement this sustainable environmental and pollution prevention goal stewardship goal and site-specific objectives and targets that are not alternatively funded through ESPCs.</li> <li>• Participate in voluntary environmental partnership programs (e.g., Adopt Your Watershed, Climate Leaders, Green Chemistry and Engineering Programs, National Environmental Performance Track, National Partnership for Environmental Priorities, etc.) where there is a programmatic benefit from doing so (community outreach, technology transfer, regulatory incentives, etc.).</li> </ul>

<b>GOAL</b>	<b>MAXIMIZE THE ACQUISITION AND USE OF ENVIRONMENTALLY PREFERABLE PRODUCTS IN THE CONDUCT OF OPERATIONS</b>
<b>OBJECTIVE</b>	Reduce or eliminate environmental hazards, conserve environmental resources, minimize life-cycle cost and liability of DOE programs, and maximize operational capability through the procurement of recycled-content, biobased-content, Electronic Product Environmental Assessment Tool (EPEAT)-registered electronics, and other environmentally preferable products thereby minimizing the economic and environmental impacts of managing toxic by-products and hazardous wastes generated in the conduct of site activities.
<b>SUSTAINABLE PRACTICES -</b>	<ul style="list-style-type: none"> <li>• Establish environmentally preferable purchasing objectives and measurable targets in site environmental management systems.</li> <li>• Specify environmentally preferable products in the acquisition of site supplies and services.</li> <li>• Procure the following environmentally preferable products, when available, affordable and effective: <ul style="list-style-type: none"> <li>– Environmental Protection Agency designated recycled-content products</li> <li>– Department of Agriculture designated biobased-content products</li> <li>– EPA Significant New Alternatives Policy (SNAP) Program acceptable substitutes for ODS</li> <li>– Other environmentally preferable products, such as: <ul style="list-style-type: none"> <li>• Cleaning products certified by GreenSeal, a U.S. standard setting and environmental labeling organization (<a href="http://www.greenseal.org">www.greenseal.org</a>);</li> <li>• EPA's list of green cleaning resources (<a href="http://www.epa.gov/oppt/epp/pubs/products/cleaner.htm">http://www.epa.gov/oppt/epp/pubs/products/cleaner.htm</a>);</li> <li>• GreenGuard indoor air quality certified office supplies, furniture, and building materials (<a href="http://www.greenguard.org">www.greenguard.org</a>);</li> <li>• GSA Advantage "environmental aisle" providing access to green products online (<a href="http://www.gsaadvantage.gov">www.gsaadvantage.gov</a>);</li> <li>• EcoLogo, the Canadian government's green product certification</li> </ul> </li> </ul> </li> </ul>

GOAL	<b>MAXIMIZE THE ACQUISITION AND USE OF ENVIRONMENTALLY PREFERABLE PRODUCTS IN THE CONDUCT OF OPERATIONS</b>
	<p>mark (<a href="http://www.environmentalchoice.com">www.environmentalchoice.com</a>).</p> <ul style="list-style-type: none"> <li>• Utilize API-rated re-refined oil, retread truck tires, antifreeze/engine coolant recyclers, water recycling/reclamation vehicle wash facilities, and biobased lubricants, fuels and degreasers/cleaners.</li> <li>• Integrate environmentally preferable purchasing into new construction and major renovation projects, pursuant to the High Performance Sustainable Building requirements of DOE Order 413.3A. <i>Program and Project Management for the Acquisition of Capital Assets</i>, and into construction and renovation-related general plant projects and institutional general plant projects, where life-cycle cost-effective.</li> <li>• Identify through the annual Department budgetary process the funding and resources needed to implement this sustainable environmental stewardship goal and site-specific objectives and targets that are not alternatively funded through ESPCs.</li> <li>• Participate in voluntary environmental partnership programs where there is a programmatic benefit from doing so (community outreach, technology transfer, regulatory incentives, etc.).</li> </ul>



<b>GOAL</b>	<b>REDUCE OR ELIMINATE THE ENVIRONMENTAL IMPACTS OF ELECTRONIC ASSETS</b>
<b>OBJECTIVE</b>	Reduce or eliminate environmental hazards, conserve environmental resources, minimize life-cycle cost and liability of DOE programs, and maximize operational capability through the incorporation of electronics stewardship practices thereby minimizing the economic and environmental impacts of managing toxic by-products and hazardous wastes generated in the conduct of site activities.
<b>SUSTAINABLE PRACTICES</b>	<ul style="list-style-type: none"> <li>• Establish electronics stewardship objectives and measurable targets in site environmental management systems.</li> <li>• Specify environmentally preferable electronics qualified through the Electronic Procurement Environmental Assessment Tool (EPEAT) or its successor, in the solicitation and acquisition of desktop computers, notebooks, and monitors. <ul style="list-style-type: none"> <li>– Utilize the EPEAT network to identify specific models of desktop computers, notebooks and monitors registered by manufacturers and vendors as environmentally preferable and listed according to three tiers of ascending environmental performance and order of preference - bronze, silver, and gold (<a href="http://www.epeat.net">www.epeat.net</a>).</li> </ul> </li> <li>• Enable Energy Star® features (power management capabilities) on computers, monitors, printers, copiers, and other electronic equipment.</li> <li>• Extend the useful lifespan of computer systems through software upgrades.</li> <li>• Reuse surplus and recycle end-of-life electronics. <ul style="list-style-type: none"> <li>– Utilize the recycling services available through the following sources as an environmentally compliant means for disposition of end-of-life electronics: <ul style="list-style-type: none"> <li>– Environmental Protection Agency Recycling Electronics and Asset Disposition (READ) Services Government Wide Acquisition Contract (<a href="http://www.epa.gov/oam/read/index.htm">www.epa.gov/oam/read/index.htm</a>);</li> <li>– Department of Justice UNICOR Electronic Recycling Program (<a href="http://www.unicor.gov/recycling">www.unicor.gov/recycling</a>);</li> <li>– General Services Administration Federal Supply Service Multiple Award Schedule 899, Reclamation, Recycling and Disposal Services; or</li> </ul> </li> </ul> </li> </ul>

GOAL	<b>REDUCE OR ELIMINATE THE ENVIRONMENTAL IMPACTS OF ELECTRONIC ASSETS</b>
	<ul style="list-style-type: none"> <li>– Recyclers that are members, in good standing, of one or more of the following professional associations:               <ul style="list-style-type: none"> <li>· International Association of Electronic Recyclers</li> <li>· Institute of Scrap Recycling Industries</li> <li>· National Recycling Coalition</li> <li>· Electronic Industries Alliance</li> </ul> </li> <li>• Identify through the annual Department budgetary process the funding and resources needed to implement this sustainable environmental stewardship goal and site-specific objectives and targets that are not addressed through ESPCs.</li> <li>• Participate in the Federal Electronics Challenge where there is a programmatic benefit from doing so (community outreach, technology transfer, regulatory incentives, etc.).</li> </ul>

GOAL	<b>REDUCE DEGRADATION AND DEPLETION OF ENVIRONMENTAL RESOURCES THROUGH POST-CONSUMER MATERIAL RECYCLING</b>
OBJECTIVE	Protect environmental resources, minimize life-cycle cost of DOE programs, and maximize operational capability by diverting materials suitable for reuse and recycling from landfills thereby minimizing the economic and environmental impacts of waste disposal and long-term monitoring and surveillance.
SUSTAINABLE PRACTICES	<ul style="list-style-type: none"> <li>• Establish post-consumer material recycling objectives and measurable targets in site environmental management systems.</li> </ul>

GOAL	<b>REDUCE DEGRADATION AND DEPLETION OF ENVIRONMENTAL RESOURCES THROUGH POST-CONSUMER MATERIAL RECYCLING</b>
	<ul style="list-style-type: none"> <li>• Recycle office paper, cardboard, aluminum, plastics, and glass.</li> <li>• Recycle spent oil, hydraulic fluid, lubricants, and solvents.</li> <li>• Recycle construction and demolition debris. <ul style="list-style-type: none"> <li>– Reuse demolition rubble (concrete, brick, and other masonry) on-site by crushing the material to stone for grading, laying utilities, and building roads, driveways and parking areas. Pulverize and reuse gravel asphalt and sub-base.</li> <li>– Utilize the General Services Administration Construction Waste Management Database to identify recyclers of 15 commonly-recycled construction and demolition debris such as concrete, asphalt, masonry, metal, plastic, and wood (<a href="http://cwm.wbdg.org">cwm.wbdg.org</a>).</li> </ul> </li> <li>• Specify recycling of construction materials into new construction and major renovation projects, pursuant to the High Performance Sustainable Building requirements of DOE Order 413.3A, and into construction and renovation-related general plant projects and institutional general plant projects, where life-cycle cost-effective.</li> <li>• Recycle empty, non-refillable, high-density polyethylene (HDPE) plastic pesticide product containers. <ul style="list-style-type: none"> <li>– Utilize the Ag Container Recycling Council (ACRC), a non-profit organization that collects and recycles professional end-users' containers of EPA registered pesticide products to include agricultural, turf, forestry, vegetative management, specialty pest control, adjuvants, crop oils, and surfactants (<a href="http://www.acrecycle.org">www.acrecycle.org</a>).</li> </ul> </li> <li>• Collect spent toner cartridges and batteries for remanufacturing.</li> <li>• Recycle surplus commodities and by-products.</li> <li>• Utilize material exchange programs such as Recycler's World Network (<a href="http://www.recycle.net">www.recycle.net</a>) or the DOE Materials Exchange Network (<a href="http://wastenot.er.doe.gov">wastenot.er.doe.gov</a>) to transfer unwanted materials to alternate users.</li> <li>• Identify, through the annual Department budgetary process, the funding and resources needed to implement this sustainable environmental stewardship goal and site-specific objectives and targets that are not</li> </ul>

<b>GOAL</b>	<b>REDUCE DEGRADATION AND DEPLETION OF ENVIRONMENTAL RESOURCES THROUGH POST-CONSUMER MATERIAL RECYCLING</b>
	alternatively funded through ESPCs.